भारतीय मानक **IS 2469 : 2023**

Indian Standard

जिप्सम — शब्दों की शब्दावली

(दूसरा पुनरीक्षण)

Gypsum — Glossary of Terms

(Second Revision)

ICS 91.100.10

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Building Limes and Gypsum Products Sectional Committee, CED 04

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Building Limes and Gypsum Products Sectional Committee had been approved by the Civil Engineering Division Council.

Gypsum is a well-known building material and is extensively used as a building material in many countries of the world. It has the specific advantages of lightness and high fire resistance.

It is estimated that the various resources for gypsum, generally of natural origin, in this country, when fully developed, will yield, in addition to high grade gypsum, large quantities of gypsum of purity 70 percent or less. The latter, according to present knowledge, also have prospects of economic use mainly as gypsum plaster as building material and various building products, such as, gypsum plaster boards gypsum tiles and gypsum blocks.

The Building Lime and Gypsum Products Sectional Committee has prepared a series of Indian Standards on building gypsum covering specifications, methods of test and codes of practice, with a view to assisting the industry, which is steadily growing. This standard on glossary of terms relating to gypsum was first formulated in 1963 and was revised in 1976 to include additional terms which were in use then.

In this revision, the existing terms and definitions have been reviewed and updated wherever required, as per the latest technological developments, and a number of new terms along their definitions have been added, such as featured edge, fineness modulus, glass mat gypsum panel, gypsum core board, perlite aggregate, synthetic gypsum and vermiculite aggregate.

In the formulation of this standard due weightage has been given to international coordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country. This has been met by deriving assistance from the following:

> ASTM Designation C-11-18b standard terminology relating to gypsum and related building materials and systems.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

GYPSUM — GLOSSARY OF TERMS

(Second Revision)

1 SCOPE

This standard defines the terms relating to gypsum and gypsum products.

2 TERMINOLOGY

2.1 Accelerator — A material that reduces setting time

2.2 Accessories — Products fabricated for the purpose of forming corners, edges, control joints, or decorative effects.

2.3 Adhesive — A substance capable of holding materials together by surface attachment.

2.4 Admixture — A material other than water, aggregates, hydraulic cementitious material, and fiber reinforcement that is used as an ingredient to modify properties and is added to the batch before or during its mixture.

2.5 Aggregate — An inert granular material which may be added to gypsum plasters.

2.6 All Purpose Compound — A compound formulated and manufactured to serve as both a taping and a finishing compound.

2.7 Anhydrous Gypsum Plaster — A material consisting essentially of anhydrous calcium sulphate ($CaSO_4$) produced by the dehydration of gypsum, the set of which has been suitably accelerated.

2.8 Arris (of an Arch) — The outside corner or angle formed by the meeting of a wall surface with the curved surface of an arch (*see* Fig. 1).

2.9 Base Coat — Any or all layers of plaster in place prior to the application of finish coats.

NOTE — The first application is normally called a scratch coat and the second application is referred to as a brown coat.

2.10 Bedding Coat — That coat of plaster to receive aggregate or other decorative material of any size, impinged or embedded into its surface, before it sets.

2.11 Bond Plaster — A calcined gypsum plaster specially formulated for application over rough monolithic concrete as a bonding coat for a subsequent gypsum plaster layer.

2.12 Bridging — Sections of wood or metal pieces used between framing members to stiffen, give lateral support, and minimize rotation.

2.13 Browning Plaster — It is a form of retarded hemihydrate plaster and is used as undercoat plaster after mixing with sand.

2.14 Building Construction Joint — A designed division of a building that allows movement of all component parts of the building in any plane, which may be caused by thermal, seismic, wind loading, or any other force. The construction of the separation is accomplished by one of the following methods: (a) manufactured devices suitable for this application or (b) by field fabrication of suitable materials.

2.15 Calcined Gypsum — A dry powder, primarily calcium sulfate hemihydrate, resulting from calcination of gypsum; cementitious base for the production of most gypsum plasters: also called plaster of Paris, sometimes called stucco.

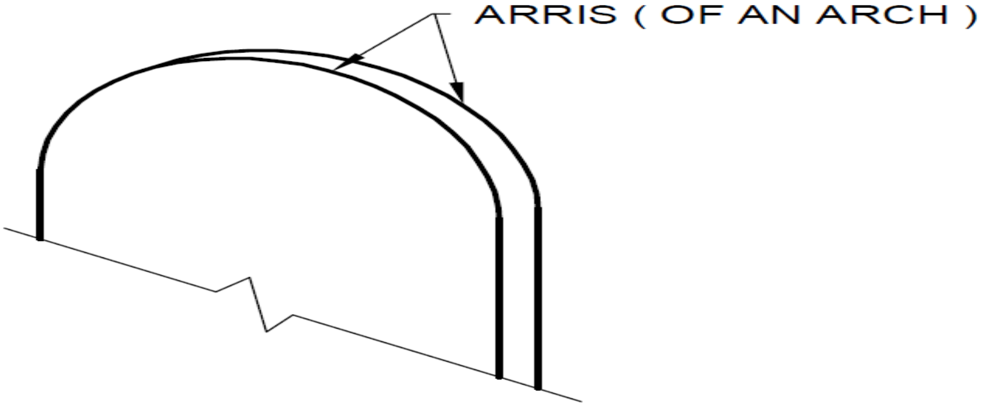

FIG. 1 ARRIS (OF AN ARCH)

2.16 Calcium Sulfate — The chemical compound $CaSO_4$.

2.17 Cement — A material or a mixture of materials (without aggregate) which, when in a plastic state, possesses adhesive and cohesive properties and which will harden in place.

NOTE — The word 'cement' is used without regard to the composition of the material.

2.18 Check Cracking (in Joint Systems) — Short, narrow cracks randomly oriented in the surface of the dried joint compound.

2.19 Coat — A layer of plaster applied in a single operation.

2.20 Combined Water — The water chemically held, as water of crystallization, by the calcium sulphate dehydrate or hemihydrate crystal.

2.21 Compressive Strength — The maximum load sustained by a standard specimen of a material when subjected to a crushing force.

2.22 Consistency — A property of a material determined by the complete flow-force relation.

2.23 Control (Expansion-Contraction) Joint — A designed separation in the system materials that allow for movement caused by the expansion or contraction of the system. The construction of the separation is accomplished by one of the following methods: (a) manufactured devices suitable for this application or (b) by field fabrication of suitable materials.

2.24 Core (of Gypsum Board) — The hardened material filling the space between the face and back papers consisting substantially of rehydrated gypsum with additives.

2.25 Core (of Gypsum Panel Products) — The hardened material, consisting substantially of gypsum with additives, fills the space between the face and the back of the gypsum panel product.

2.26 Cornerbead — An accessory for outside corners.

2.27 Corner Reinforcement, Exterior — A preformed section of wire or expanded sheet steel for the reinforcement of exterior stucco external corners (arrises).

2.28 Crushed Gypsum — Gypsum subjected to a primary crushing operation.

2.29 Cure (Portland Cement Plaster or Stucco) — (a) To provide conditions conducive to the hydration process of Portland cement plaster or stucco, or (b) to maintain proper temperature and a sufficient quantity of water within the plaster to ensure cement hydration.

2.30 Density — The weight per unit volume of a material.

2.31 Dried Sample — A sample devoid of free water.

2.32 Edge (of Glass Mat Gypsum Panels) — The bound edge as manufactured.

2.33 Edge (of Gypsum Board) — The paper-bound edge as manufactured.

2.34 Edge Trim — An accessory to cover exposed ends or edges of gypsum board.

2.35 End (of Glass Mat Gypsum Panels) — The end is perpendicular to the bound edge. The gypsum core is always exposed.

2.36 End (of Gypsum Board) — The end perpendicular to the paper-bound edge. The gypsum core is always exposed.

2.37 Face — The surface is designed to be left exposed to view or to receive decoration or additional finishes.

2.38 Facer — A woven or nonwoven fabric or membrane on the surface of a gypsum board or gypsum panel product that is an integral part of the product.

2.39 Featured Edge — An edge configuration of the paper bound edge of gypsum board that provides special design or performance.

2.40 Fineness Modulus — An empirical factor obtained by adding total percentages of a sample of aggregate retained on each of a specified series of sieves and dividing by 100. The sieve sizes used are: No. 100 (150 µm), No. 50 (300 µm), No. 30 (600 µm), No. 16 (1.18 mm), No. 8 (2.36 mm), No. 4 (4.75 mm), 3/8 inch (9.5 mm), 3/4 inch (19.0 mm), 3/2 inch (38.1 mm) and larger, increasing in the ratio of 2 to 1.

2.41 Finish Coat — The final layer of plaster applied over a basecoat or other substrate.

2.42 Finishing Compound or Topping Compound — A compound specifically formulated and manufactured for use over taping or all-purpose compounds to provide a smooth and level surface for the application of decoration.

2.43 Fire Resistance Classification — A standard rating of fire resistance and protective characteristics of building construction or assembly.

2.44 Flame Spread Classification — A standard rating of relative surface burning characteristics of a building material as compared to a standard material.

2.45 Flexural Strength — The maximum load sustained by a standard specimen of a sheet material when subjected to a bending force.

2.46 Floating — The act of spreading, compacting, or consolidating to achieve a specified uniform appearance.

2.47 Framing Member — Stud, plate, track, joist, furring, and other support to which a gypsum panel product or metal plaster base is attached.

2.48 Free Water — All water contained by gypsum board or plaster in excess of that chemically held as water of crystallization.

2.49 Gauging Plaster — Calcined gypsum plaster used with lime for a finish coat.

2.50 Glass Mat — Woven or non-woven fabric of glass fibers with or without a binder.

2.51 Glass Mat Gypsum Panel — Gypsum panel product with glass mat facers.

2.52 Grout — Gypsum or Portland cement plaster used to fill crevices or to fill hollow metal frames.

2.53 Gypsum — Calcium sulphate combined with two molecules of water, in crystalline form, having the approximate chemical formula $CaSO_4.2H_2O$.

2.54 Gypsum Backing Board — A sheet or a slab having an incombustible core, essential of gypsum, surfaced with paper on both sides and designed to be used as a base layer or a backing material in multilayer construction.

2.55 Gypsum Board — The generic name for a family of noncombustible sheet products consisting of a core primarily of gypsum and a paper surfacing.

2.56 Gypsum Concrete — A combination of aggregate or aggregates with calcined gypsum as a binding medium, which after mixing with water, sets into a conglomerate mass.

2.57 Gypsum Fibre Concrete — Gypsum concrete in which the aggregate consists of shaving fibre, or chips of wood.

2.58 Gypsum Formboard — A sheet or a slab having an incombustible core, essentially of gypsum, surfaced on the exposed side with a fungus-resistant paper and on the reverse side with paper suitable to receive poured-in-place gypsum concrete.

2.59 Gypsum Lath — Gypsum board used as the base for application of gypsum plaster

a) Insulating gypsum lath — The same as plain gypsum lath except that in addition, the back surface is covered with a continuous sheet of pure bright finished aluminium foil;
b) Perforated gypsum lath — A gypsum lath having perforations to provide mechanical keying of the base coat plaster;
c) Plain gypsum lath — A gypsum lath without perforations; and
d) Type-X lath — A gypsum lath specially manufactured to provide specific fire retardant characteristics.

2.60 Gypsum Base for Veneer Plasters — A Gypsum board used as the base for application of a gypsum veneer plaster.

2.61 Gypsum Casting Plaster — A calcined gypsum plaster used primarily to form objects, such as lamp bases, art ware, novelties, and so forth.

2.62 Gypsum Coreboard — A 3/4 inch (19 mm) to 1 inch (25.4 mm) gypsum board consisting of a single board or factory laminated multiple boards, used as a gypsum stud or core in semisolid or solid gypsum board partitions.

2.63 Gypsum Moulding Plaster — A Material consisting essentially of calcined gypsum for use in making interior embellishments and cornices as gauging plaster.

2.64 Gypsum Neat Plaster — A calcined gypsum mixed at the mill with ingredients to control working quality and setting time.

NOTE — Neat plaster is either fibred or unifibered. The addition of aggregate is required on the job.

2.65 Gypsum Panel Products — General name for a family of sheet products consisting essentially of gypsum.

2.66 Gypsum Partition Block (or tile) — A gypsum building unit in the form of block (or tile) for use in non-load bearing construction in the interior of buildings and for the protection of columns, elevator shafts, etc against fire.

2.67 Gypsum Plaster — The generic name for a family of powered cementitious products consisting primarily of calcined gypsum with additives to modify physical characteristics and having the ability, when mixed with water. To produce a plastic mortar or slurry which can be formed to the desired shape by various methods and will subsequently set to a hard, rigid mass.

2.68 Gypsum Sheathing — A Gypsum panel products are specifically manufactured with enhanced water resistance for use as a substrate for exterior surface materials.

2.69 Gypsum Wallboard — A Gypsum board used primarily as an interior surfacing for building structures

a) Foil-backed gypsum wallboard — Gypsum wallboard with the back surface covered with a continuous sheet of pure bright finished aluminum foil; and
b) Type-X gypsum wallboard — Gypsum wallboard specially manufactured to provide specific fire-resistant characteristics.

2.70 Gypsum Wood-Fibered Plaster — Calcined gypsum plaster containing shredded or ground wood fiber added during manufacture.

2.71 Hemihydrate — The dry powder, calcium sulfate hemihydrate, resulting from calcination of $CaSO_4.2H_20$, calcium sulfate dihydrate.

2.72 Joining — The juncture of two separate plaster applications of the same coat, usually within a single surface plane.

2.73 Joint Compound — Generic term referring to all compounds used for taping or finishing gypsum hoard, or both.

2.74 Joint Reinforcing Metal — Strips of expanded metal, woven, or welded wire mesh used to reinforce corners and other areas of plaster and lath.

2.75 Joint Reinforcing Tape — A type of paper, metal, fabric, glass mesh or other material commonly used with a cementitious compound to reinforce the joints between adjacent gypsum boards.

2.76 Joint Tape – A strip of tape made from paper, metal, fabric, glass mesh, or other material, that is commonly used in a joint system to reinforce the joints between adjacent gypsum panel products.

a) Glass-mesh joint tape — joint tape made from multidirectional glass yarn.
b) Paper joint tape — joint tape made from paper and designed to be embedded in the joint compound.
c) Self-adhering joint tape — a glass-mesh joint tape designed to adhere without requiring mechanical attachment.

2.77 Keene's or Parian Cement — Anhydrous calcined gypsum plasters, which are characterized by being more easily brought to a smooth and true finish in a continuous plastered surface, this property being associated as well with a slow and gradual set.

NOTE — Keene's cement contains alum or aluminium sulphate, whereas parian cement contains borax.

2.78 Key — The grip or mechanical bond of one coat of plaster to another coat or to a substrate.

NOTE — It may be accomplished physically by the penetration of wet mortar or crystals into paper fibres, perforations, scoring irregularities, or by the embedment of the lath.

2.79 Load-bearing Partition — Partition designed to support a portion of the building structure.

2.80 Machine Direction — The 5 direction parallel to the paper-bound edge of the gypsum board.

2.81 Manufactured Sand — The fine material resulting from the crushing and classification by screening or otherwise, of rock, gravel, or blast furnace slag.

2.82 Masonry Cement — A hydraulic cement for use in mortars for masonry construction, containing one or more of the following materials: Portland cement, Portland blast furnace slag cement, Portland-pozzolana cement or hydraulic lime; and in addition usually containing one or more materials such as hydrated lime, limestone, chalk, calcareous shell, talc, slag, or clay as prepared for this purpose.

2.83 Mechanical Bonds — The attachment created when plaster penetrates into or through, the substrate or envelops irregularities in the surface of the substrate.

2.84 Members (in Application of Gypsum Panel Products) — Framing to which gypsum panel products are attached.

2.85 Mill-mixed Plaster (Ready-Mixed Plaster) — Material formulated and dry-blended by the manufacturer, requiring only the addition of and mixing with water.

2.86 Mold-Resistant Gypsum Panel — Gypsum panel manufactured or treated to resist mold growth.

2.87 Mortar — A mixture of gypsum plaster with aggregate or hydrate lime, or both and water to produce a trowelable fluidity.

2.88 Metal Lathing Plaster — It is a form of retarded hemihydrate plaster and is used as undercoat plaster after mixing with sand. It is different from browning plaster in that it contains free lime also.

2.89 Natural Sand — The fine granular material resulting from the natural disintegration of rock or from the crushing of friable sandstone.

2.90 Nominal Thickness (of Gypsum Panel Products) — The manufacturer stated thickness of the gypsum panel products.

2.91 Normal Consistency — The number of millilitres of water per 100 g of gypsum plaster or gypsum concrete required to produce a mortar or slurry of specified fluidity.

2.92 Perlite Aggregate — A siliceous volcanic glass expanded by heat.

2.93 Perm — A unit of measurement of water vapor permeance; a metric perm,that is 1g/(24 h.m^2.mmHg) or U.S. unit that is 1 grain/ (h.ft^2-inch Hg).

2.94 Permeability — The property of a porous material that permits a fluid (or gas) to pass through it; in construction, commonly refers to water vapor permeability of a sheet material or thickness. Metric unit of measurement, metric perms per centimeter of thickness.

2.95 Permeance (Water Vapor) — The ratio of the rate of water vapor transmission (WVT) through a material or assembly between its two parallel surfaces to the vapor pressure differential between the surfaces. Metric unit of measurement is the metric perm, 1g/24 h.m^2.mmHg; U.S unit, 1 grain/h-ft^2-in.Hg.

2.96 Plaster — *see* gauging plaster and gypsum neat plaster

2.97 Plaster of Paris — A form of hemihydrate without any added retarder of set.

NOTE — It is manufactured in several grades for various industrial uses.

2.98 Plaster Bond — The adhesion between plaster coats or between plaster and substrate.

2.99 Plastic Cement — A hydraulic cement to which one or more plasticizing agents (but not more than 12 percent by volume) have been added during inter-grinding or blending to increase the workability and molding qualities of the resultant cement paste, mortar, or plaster.

2.100 Plasticity — The property of freshly mixed paste, mortar, or plaster which determines its workability and molding qualities.

2.101 Portland Cement — A hydraulic cement produced by pulverizing clinker consisting essentially of hydraulic calcium silicates, and usually containing one or more forms of calcium sulfate as an interground addition.

2.102 Portland Cement Plaster — A plaster mix in which Portland cement or combinations of Portland and masonry cements or portland cement and lime are the principal cementitious materials mixed with aggregate.

2.103 Purity — The percentage of $CaSO_4.1/2H_2O$ in the calcined gypsum portion of a gypsum plaster or gypsum concrete, for gypsum plasters. The percentage of $CaSO_4.2H_2O$ in the gypsum or the gypsum portion of fully hydrated, dry, set gypsum plaster.

2.104 Ready-Mixed Plaster — calcined gypsum plaster with aggregate added during manufacture.

2.105 Relative Humidity — The ratio of actual water vapor pressure to the saturation water vapor pressure at the same temperature, expressed as a percentage.

2.106 Retarder — material that extends setting time.

2.107 Retarded Hemihydrate — A form of hemihydrate which contains an addition of a retarder of set.

2.108 Round Edge — A rounded, paper–bound edge formation on gypsum board, commonly used for gypsum lath.

2.109 Saddle-Tie, for Furring — A single or double strand of wire used to attach furring members to framing members of wall or ceiling assemblies (*see* Fig. 2).

2.110 Saddle-tie, for Wire Hangers – To attach wire hangers to main runners (*see* Fig. 3).

2.111 Sample as Received — A representative portion of product or material in the state received by the testing laboratory.

2.112 Scratch Coat — The first layer of plaster applied over lath or other substrate.

2.113 Set — The chemical and physical change in plaster as it goes from a plastic, workable state to a rigid state.

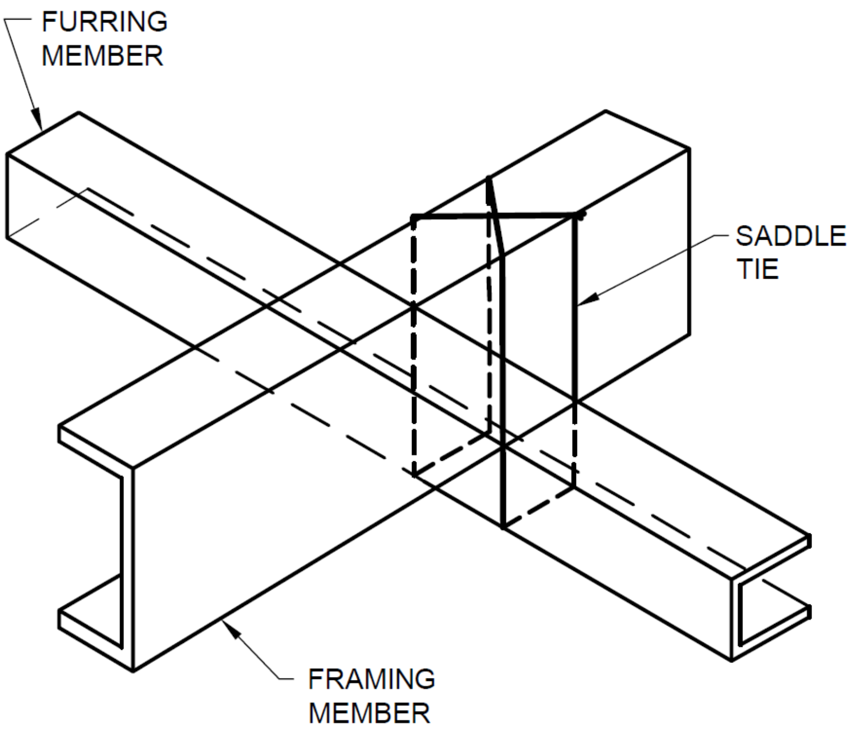

FIG. 2 SADDLE-TIE FOR FURRING

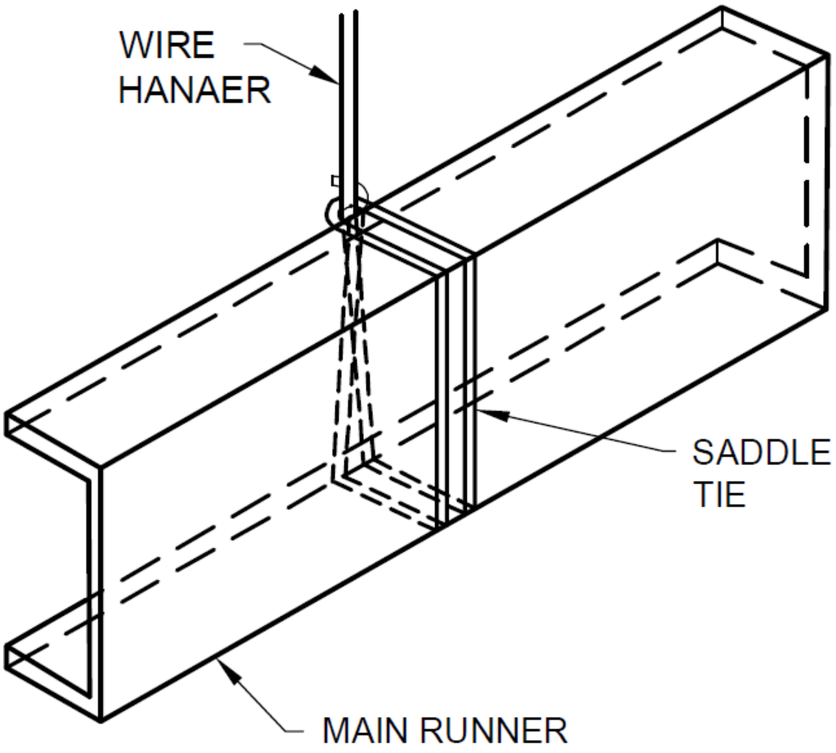

FIG. 3 SADDLE-TIE FOR WIRE HANGERS

2.114 Setting Time — The elapsed time required for a gypsum plaster to attain a specified hardness and strength after mixing with water.

2.115 Shipment (of Gypsum Panel Products) — The quantity of gypsum panel products shipped by a manufacturer and included on a single invoice.

2.116 Smooth-Trowel Finish — A uniform finish free of grainy or coarse areas, trowel marks, or other avoidable imperfections.

2.117 Spinout — The continued rotation of a screw without further penetration into the substrate.

2.118 Steel Drill Screw — Self-drilling screw with the ability to drill its own hole and form or cut mating threads without deforming its threads or breaking.

2.119 Stucco — A material used in a plastic state, which may be trowelled to form, when set, a hard covering for the exterior walls or other exterior surfaces of any building or structure.

NOTE — The word 'stucco' is used without regard to the composition of the material and is defined only with reference to its use and location as contrasted with the words 'piaster' and 'mortar'.

2.120 Synthetic Gypsum — A chemical product consisting primarily of calcium sulfate dihydrate ($CaSO_4$. $2H_2O$) resulting primarily from an industrial process.

2.121 Tapered Edge or Recessed Edge — An edge formation of gypsum board which provides a shallow depression at the paper-bound edge to receive joint reinforcement.

2.122 Taping Compound or Embedding Compound — A compound specifically formulated and manufactured for use in embedding of joint reinforcing tape at gypsum board joints.

2.123 Temper — To mix or restore to a workable consistency.

2.124 Texture Finish — Any applied decorative finish other than smooth.

2.125 Three-coat Work — Plaster applied in three successive coats with time between coats for setting or drying, or both.

2.126 Veneer Plaster — A calcined gypsum plaster specially manufactured to provide high strength, hardness and abrasion resistance when applied in thin coats over a veneer plaster base.

2.127 Veneer Plaster Base — A gypsum board used as the base for application of a gypsum veneer plaster.

2.128 Vermiculite Aggregate — A micaceous mineral that expands with heat.

2.129 Water Resistant Gypsum Backing Board — A gypsum board designed for use on walls primarily as a base for the application of ceramic, or plastic tile.

2.130 Wallboard — *see* gypsum wallboard.

2.131 Water Absorption — The amount of water absorbed by a material under specified test conditions commonly expressed as weight percent of the test specimen.

2.132 Water-Repellent Paper — gypsum board paper surfacing which has been formulated or treated to resist water penetration.

2.133 Water-Resistant Core — A gypsum board specially formulated to resist water penetration.

2.134 Water Vapor Transmission (WVT) — The rate of water vapor flow, under steady specified conditions, through a unit area of a material, between its two parallel surfaces and normal to the surfaces. Metric unit of measurement is 1 $g/24\ h.m^2$.

2.135 Wood Fibre — Material produced by grinding or shredding wood.

2.136 Wood Fibred Plaster — Calcined gypsum plaster containing shredded or ground wood fibre added during.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Building Lime and Gypsum Products Sectional Committee, CED 04

Organization	*Representative(s)*
School of Planning and Architecture, New Delhi	Shrimati Anuradha Chaturvedi **(*Chairperson*)**
AIMIL Ltd, New Delhi	Shri Rohitash Barua Shri Madan Kumar Sharma (*Alternate*)
Archaeological Survey of India, New Delhi	Shri R. S. Jamwal
Building Materials and Technology Promotion Council, New Delhi	Shri C. N. Jha
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CSIR - Central Building Research Institute, Roorkee	Shri Soumitre Maiti
CTS Restoration Products India Private Limited, New Delhi	Shri Roberto Bello
Delhi Development Authority, New Delhi	Shri U. C. Chankkar Shri Devendar Singh (*Alternate*)
Diamond International Inex Pvt Limited, Gurugram	Shri B. B. Puri Shri Raman Mehta (*Alternate*)
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Knauf India Private Limited, Khushkhera	SHRI K. K. SIRPAL SHRIMATI NEHA SAINI (*Alternate*)
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Ministry of Science and Technology, Department of Science & Technology, New Delhi	SHRI CHANDER MOHAN
National Council for Cement and Building Materials, Faridabad	DR PINKY PANDEY SHRI SURESH VANGURI (*Alternate*)
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Member Secretary
DR MANOJ KUMAR RAJAK
SCIENTIST 'D'/JOINT DIRECTOR
(CIVIL ENGINEERING), BIS

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